Effect of some nutrients on garlic plants

Ahmed Mohamed Ahmed Aly

well as bulbs yield were obtained when Nand P wasincluded in the growth media at the first periodcomparing with later one. On the other hand, minimumeffects were resulted in the case of Fe or micronutrientstreatments.(3) The absence of N, P, Fe or micro-nutrients at anystage of garlic plant growth decline both N concentrationand total content in different plant organsspecially for bulb. The most depressive occurredwhen N itself was absent during all periods or at thefirst period only. P and Fe or micro-nutrients followedN in this respect. The application of P duringthe first period of plant growth is very important fornormal N proportion distribution in garlic plantorgans, while the absence of Fe or micro-nutrientsduring any stage troubled the accumulation proportionof N in roots and sometimes leaves. The same resultswere obtained on the effect of tested nutrients forthe concentration, total content and-percentage distributionof phosphorus in different garlic plantparts.(4) The omission of other tested nutrients. The absenceof P and N appears to have the greatest effect on Kaccumulation reduction in different plant parts thanthe other tested nutrients.(5) The absence of tested nutrients stimulated Ca concentrationin roots and leaves, Fe or micro-nutrientsabsence during the second period of plant growth enhancedthe accumulation ofea in leaves as well asbulbs, but decreased it in roots, N or P seemed tohave more effect in reducing the proportion accumulationof Ca in leaves and roots when these elementswere absent at any period of garlic plant growth.(6) The complete absence of P or Fe and micro-nutrientsreduced both the concentration and accumulation of Mgin garlic plant organs, while N have the same resultswhen its absence occurred during the second periodonly. The absence of any of tested nutrients duringthe various periods disturb the proportion accumulationof Mg in garlic plant parts.(7) Absence of N during the first period and P or Fe duringall periods reduced the concentration of Fe in differentgarlic plant parts. Total accumulation of Fe affectedby the absence of any nutrients during the periods,the most depressive effects I when N was absent followedby P and Fe or micro-nutrients. The reduction in Feproportion in leaves was observed when N was absentduring the second period, while all absence stimulatedhigher Fe proportion in bulb at the end of plant ~.(8) Absence of N or P during first period or completelyabsence decreased Mn concentration, total accumulationand percentage distribution in different garlic plantparts. While the same effects were shown when micronutrientsabsent during bulb development stage.(9) The absence of N, P, or micro-nutrients at early stageof growth or throughout the whole experiment depressedgreatly the concentration of Zn in different garlicplant parts, specially for the absence of N or P onleaves concentration. The absence of Fe at any periodincreased Zn concentration on roots as well as leavesat the end of bulb development stage while that of bulbdecreased. All tested nutrients declined the totalaccumulation of Zn in different plant parts when theseelements were absent during the first period of garlicplant stage, except for the complete absence of N,which increased Zn proportion in bulbs.(10) The concentration of eu or the total accumulation invarious garlic plant parts nearly to have the same tothat of Mo, when N was absent during the second periodof growth a reduction in eu proportion in leaves wasobserved while an increase in bulb was occurred. Theabsence of Fe or micro-nutrients during any stage ofgrowth reduced proportion accumulation of eu in rootsand bulbs while that of leaves increased.(11) The absence of N, P, Fe or micro-nutrients during anyperiod of growth specially the first period depressedgreatly the concentration and total amounts of reducingand non reducing sugars in different garlicplant parts. The most depressive effect was p~oedwith the absence of N followed by P and Fe or micronutrientscame the latter.(12) The bulbs possessed the

highest of variable proteinfractions during different period at growth. Waterrpotein fraction was the highest one in different plantparts followed by the salt soluble, residual nonsoluble,alcohol soluble, and alkaline buffer solublewas the less one. The absence of any tested nutrientsduring the first period of growth or the completeabsence caused a depressive effect on total proteinfraction content specially in bulby N or P absenceseemed to have the greatly eff~ct, followed by Fe ormicro-nutrients which affected slightly in thisrespect.